

vehicle, and a means to cause said bright light to repeatedly flash on and off.

9. The apparatus of claim 1, wherein said alarm means is a means to cause repeated honking of a horn of said vehicle.

10. The apparatus of claim 1, wherein said alarm means includes means to cause repeated flashing of emergency flasher lights of said vehicle.

11. The apparatus of claim 2, wherein each of said detectors has two electrodes, and wherein said driving means is an oscillator connected to one of said electrodes, and wherein said signal processing, analysis and alarm activation means is connected to the other of said electrodes.

12. The apparatus of claim 11, wherein a single oscillator drives all of said sensors.

13. The apparatus of claim 1, wherein said alarm means is a means to play a recorded message calling out said operator's name, and commanding said operator to wake up.

14. Method of dealing with an impaired operator condition, for an operator of a transportation vehicle, comprising the steps of:

- (a) Continuously sensing and recording the position of said operator's head;
- (b) Comparing the time profile of motion of said operator's head, with reference time profiles of normal and impaired operator head motion;
- (c) Determining, based upon said comparison, when said operator is significantly impaired in operating ability; and
- (d) Alerting said operator to said determination that said operator is significantly impaired.

15. Impaired operator detection and damage prevention apparatus, for detecting significant impairment of the operating ability of a transportation vehicle operator, by measurement and analysis of the motion of said operator's head, and for prevention of damage to persons or property resulting from said impairment, comprising:

- (a) Sensing means, for sensing the position of said operator's head, and for producing electrical output signals dependent upon said position of said operator's head;
- (b) Signal processing, analysis, and alarm activation means, connected to said sensing means, for achieving any needed amplification of said output signals, for any height of said operator within an expected ranges of heights for said operator, and for determining the time profile of the motion of said operator's head by analysis of said output signals, and for comparing said time profile of said motion of said operator's head, with reference profiles characteristic of normal and impaired operator head motion, and for activation of a vehicle stopping means, upon a determination, based upon said comparison of said profiles, that said operator is significantly impaired in operating ability; and
- (c) Said vehicle stopping means, connected to said signal processing, analysis and alarm activation means, for causing said vehicle to come to a gradual, safe stop upon said determination that said operator is significantly impaired in operating ability.

16. Impaired operator detection and warning apparatus, for detecting significant impairment of the operating ability of a transportation vehicle operator, by measurement and analysis of the motion of said operator's head, and for warning of said impairment at a location remote from said vehicle, comprising:

(a) Sensing means, for sensing the position of said operator's head, and for producing electrical output signals dependent upon said position of said operator's head;

(b) Signal processing, analysis, and alarm activation means, connected to said sensing means, for achieving any needed amplification of said output signals, for any height of said operator within an expected ranges of heights for said operator, and for determining the time profile of the motion of said operator's head by analysis of said output signals, and for comparing said time profile of said motion of said operator's head, with reference profiles characteristic of normal and impaired operator head motion, and for activation of an alarm means, upon a determination, based upon said comparison of said profiles, that said operator is significantly impaired in operating ability; and

(c) Said alarm means, connected to said signal processing, analysis and alarm activation means, for providing notification, at a location remote from said vehicle, of said determination that said operator is significantly impaired.

17. Impaired operator detection and warning apparatus, for detecting significant impairment of the operating ability of a transportation vehicle operator, by measurement and analysis of the motion of said operator's head, and for warning of said impairment, comprising:

- (a) Sensing means, for sensing the position of said operator's head, and for producing electrical output signals dependent upon said position of said operator's head;
- (b) Signal processing, analysis, and alarm activation means, connected to said sensing means, for achieving any needed amplification of said output signals, for any height of said operator within an expected ranges of heights for said operator, and for determining the time profile of the motion of said operator's head by analysis of said output signals, and for comparing said time profile of said motion of said operator's head, with reference profiles characteristic of normal and impaired operator head motion, and for activation of an alarm means, upon a determination, based upon said comparison of said profiles, that said operator is significantly impaired in operating ability; and
- (c) Said alarm means, connected to said signal processing, analysis and alarm activation means, for alerting persons other than said operator to said determination that said operator is significantly impaired.

18. The apparatus of claim 17, wherein said alarm means includes means to cause repeated flashing of emergency flasher lights of said vehicle.

19. Method of dealing with an impaired operator condition, for an operator of a transportation vehicle, comprising the steps of:

- (a) Continuously sensing and recording the position of said operator's head;
- (b) Comparing the time profile of motion of said operator's head, with reference time profiles of normal and impaired operator head motion;
- (c) Determining, based upon said comparison, when said operator is significantly impaired in operating ability; and
- (d) Alerting persons other than said operator to said determination that said operator is significantly impaired.